



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/808,613	03/14/2001	Robert John Haycock	A34114	4550

7590 09/23/2004

BAKER BOTTS L.L.P  
44TH FLOOR  
30 ROCKEFELLER PLAZA  
NEW YORK, NY 10112-4498

EXAMINER

BAYARD, EMMANUEL

ART UNIT	PAPER NUMBER
----------	--------------

2631

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/808,613

**Applicant(s)**

HAYCOCK, ROBERT JOHN

**Examiner**

Emmanuel Bayard

**Art Unit**

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/12/01.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 1 is objected to because of the following informalities: in line 11, replace “the received pulses” with – the modified pulses. Appropriate correction is required.
2. Claim 2 is objected to because of the following informalities: in line 5, replace “the” before sampler with –a--. Appropriate correction is required.
3. Claims 3-4 are likewise objected because they depend on a base rejected claim.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-5, 7-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Shirai et al U.S. patent No 6,218,98 B1.

As per claim 1, Shirai et al teaches a method of calibrating a system which includes a device for differentially amplifying low frequency components and high frequency components in a received signal, and in which the amplified signal is transmitted from a first end of a transmission line to a second end of the transmission line, the method including: repeatedly generating pulses of known duration (see fig.1 element 12 and col.4, line6-67); using a driving circuit is the same as the claimed (the device to amplify) (see fig.1 element 14a and col.4, lines 28-44) low frequency

Art Unit: 2631

components and high frequency components in the generated pulses to different degrees to form a modified pulse, and transmit the modified pulses along the line from the first end (see fig.1 element 14 and col.4, lines 17-27 and col.6, lines 36-40); measuring the duration of the received pulses received at the second end (see abstract and col.2, lines 40-65 and col.6, lines 49-60); and increasing the degree to which high frequency components are amplified (see fig.1 element 18 and col.5, lines 5-67 and col.6, lines 1-60 and col.11, lines 25-30) relative to low frequency components until the measured duration of the received pulses is equal to the known duration of the generated pulses to within a predetermined tolerance.

As per claim 2, Shirai et al does teach the duration of the received pulses is measured using a unit which samples ( an A/D is the known in the art to perform the claimed (samples) (see figs.1, 2 element 50 and col.6, line 63) the signal received at the second end of the line based on a clock signal (see fig.1 element 10 and col.6, lines 63- col.7, lines 1-17) having a tunable phase, the method including varying the phase of the clock signal until a given sample output from the sampler (A/D) coincides with an end of each received pulse (see col.7, lines 18-67 and col.11, lines 25-30), and measuring the duration of received pulses by taking multiple samples across the received pulses.

As per claim 3, the device of Shirai inherently teaches transmitted pulses having respective durations which are integer numbers of clock cycles, the pulses of known duration each being a single clock cycle in length.

As per claim 4, the device of Shirai inherently teaches the system has two transmission lines, the device transmitting equal and opposite signals into a first end of

Art Unit: 2631

each transmission line and the duration of the received pulse being measured using signals received at the second end of the transmission lines.

As per claim 5, Shirai teaches a data transmission system which includes: using a driving circuit is the same as the claimed (see fig.1 element 14a and col.4, lines 28-44) (pre-emphasis unit for receiving a signal, differentially amplifying) low frequency components and high frequency components in the received signal and transmitting the amplified signal into a first end of a transmission line (see fig.1 element 14 and col.4, lines 17-27 and col.6, lines 36-40); a pulse generator (see fig.1 element 12 and col.4, line 6-67) for repeatedly generating pulses of known duration and supplying them to the pre-emphasis unit (driving circuit); a receiver located at a second end of the transmission line for receiving the pulses and measuring the duration of the received pulses received (see fig.1 element 16 and col.5, lines 5-67 and col.6, lines 1-60 and col.11, lines 25-30); a control unit (see fig.1 element 30 and col.6, lines 35-40) for controlling the pre-emphasis unit to increase the degree to which high frequency components are amplified (see fig.1 element 18 and col.5, lines 5-67 and col.6, lines 1-60 and col.11, lines 25-30) relative to low frequency components until the measured duration of the received pulses is equal to the known duration of the generated pulses to within a predetermined tolerance.

As per claim 7, Shirai inherently teaches transmitting pulses having respective durations, which are an integer number of clock cycles, the pulse generator generating the pulses of known duration to be a single clock cycle in length.

As per claim 8, Shirai inherently teaches there are two transmission lines, the pre-emphasis unit being arranged to transmit equal and opposite signals into a first end of

Art Unit: 2631

each transmission line and the received being arranged to measure the duration of the received pulse using signals received at the second end of the transmission lines.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirai U.S. Patent No 6,218,982 B1 in view of Morita et al U.S. Patent No 5,0185,28.

As per claim 6, Shirai et al teaches all the features of the claimed invention except the receiver comprises a mixer unit for modifying the phase of a clock signal and a mixer control unit for controlling the mixer unit to vary the phase of the clock signal until a given sample from the sampler coincides with an end of the received pulse and measure the duration of the received pulses by taking samples across the received pulse.

Morita teaches the receiver comprises a mixer unit (see fig.1 element 7 for modifying the phase of a clock signal and a mixer control unit for controlling the mixer unit (see fig.1 element 8 to vary the phase of the clock signal until a given sample from the sampler (see fig.1 element 12) coincides with an end of the received pulse and measure the duration of the received pulses by taking samples across the received pulse (see col.2, lines 35-67 and col.3, lines 30-55).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Morita into Shirai as to obtain best Doppler signals with respect to an arbitrary sample volume length under the condition mean power of transmit ultrasonic

Art Unit: 2631

waves is restricted to a constant value as taught by Morita (see abstract and col.1, lines 38-44).

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Shirai et al U.S. patent No 6,393,377 b1 teaches a distance measurement apparatus.

Sturtt et al U.S. patent No 6,295,875 B1 teaches an apparatus for determining a physical process (\*).

Wakayama U.S. patent No 6,097,329 teaches a meteorological radar apparatus (\*).

Michalski et al U.S. patent No 6,122,602 teaches a method and arrangement for electromagnetic wave distance (\*).

Hertzman et al U.S. patent No 6,115,112 teaches an electronic distance-measuring instrument (\*).

Maltby et al U.S. patent No 6,212,943 B1 teaches a method and apparatus for the sonic measurement of sludge and clarity condition.

Hill et al U.S. patent No 4,743,910 teaches a frequency domain, Pulse compression.

Oblak et al U.S. patent No 5,319,972 teaches an ultrasonic liquid.

Barney U.S. patent No 5,103,728 teaches an ink level control system.

Maltby et al U.S. patent No 6,062,070 teaches a method and apparatus for the sonic measurement.

Corrigan et al U.S. patent No 5,801,818 teaches an active reflex optical range finder.

Rosich et al U.S. patent No 6,263,094 B1 teaches an acoustic data.

Frink U.S. patent No 5,986,602 teaches a pulse radar device.

Art Unit: 2631

Koslar U.S. patent No 6,404,338 B1 teaches a measuring AND/OR security system.

Clark U.S. patent nO 6,142,942 teach an ultrasound imaging system.

Clark et al U.S. patent No 6,193,661 B1 teaches a system and method for providing depth perception using single dimension interpolation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 571 272 3016. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Emmanuel Bayard  
Primary Examiner  
Art Unit 2631  
**EMMANUEL BAYARD**  
**PRIMARY EXAMINER**

9/21/04

